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C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

4.120.8.i 8 O’Clock (PEER 17) PHENIX Gas Detection Tests

C-A-OPM Procedures in which this Attachment is used.		
4.120.8		

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

V. Castillo

Approved: _____
 Collider-Accelerator Department Chairman

 Date

4.120.8.i 8 O’Clock (PEER 17) PHENIX Gas Detection Tests

PASS ANNUAL ACCEPTANCE TEST PROTOCOL

Division A Software Filename and Checksum: Title: _____ Checksum: _____

Division B Software Filename and Checksum: Title: _____ Checksum: _____

Initial testing complete:

Test Team Leader’s Name (Print): _____ Life Number: _____

Test Team Leader’s Name (Sign): _____ Date: ____/____/____

Acceptance test procedure complete (following repairs and retesting if required):

Test Team Leader’s Name (Print): _____ Life Number: _____

Test Team Leader’s Name (Sign): _____ Date: ____/____/____

Test results reviewed by:

Safety Section Head’s Name (Print): _____ Life Number: _____

Safety Section Head’s Name (Sign): _____ Date: ____/____/____

Test results accepted by Radiation Safety Committee:

RSC Member’s Name (Print): _____ Life Number: _____

RSC Member’s Name (Sign): _____ Date: ____/____/____

1.1 Current Source Test of PHENIX North Gas Detector, 8XGS1, in Mode 8

CONN	Voltmeter to Div A: Mod 11 Input 0, 1008B	
CONN	Voltmeter to Div B: Mod 6 Input 1, 1008B	
CONN	Current Srce to Tp 3(+), Tp 4(-) 8XGS1 pcb in Div A cab 1008B	
PLACE	Peer 17 in Mode 8	
<input type="checkbox"/> VERIFY	Peer 17 is in Restricted Access	MODE 8
RAISE	Current value (~ 1.7 mA) for Level 1 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 1
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.4V
RAISE	Current value (~ 2.5 mA) for Level 2 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 2
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.6V
RAISE	Current value (~ 4.1mA) for Alarm response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	ALARM
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	Peer 17 is in Safe Mode	MODE 2
LOWER	Current value for ~ 1.6 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	FAIL
LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	SUCCESSFUL
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
LOWER	Current value for ~ 1.0 V output for Div A & B	
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS1 as	SAFE
<input type="checkbox"/>	Check acceptance of Current Source test of PHENIX North Gas detector, 8XGS1, in Mode 8	

1.2 Current Source Test of North Gas Detector 8XGS1 in PHENIX in Mode 17

<input type="checkbox"/>	PLACE	Peer 17 in Mode 17	
<input type="checkbox"/>	VERIFY	Peer 17 is in Restricted Access	MODE 17
<input type="checkbox"/>	RAISE	Current value (~ 4.1mA) for Alarm Response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 17 is in Safe Mode	MODE 2
	LOWER	Current value for ~ 1.0 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 8XGS1 as	SAFE

☐ Check for test acceptance of Current Source test of North Gas detector 8XGS1 in PHENIX in Mode 17

1.3 Current Source Test of North Gas Detector 8XGS1 in PHENIX in Mode 16

<input type="checkbox"/>	PLACE	Peer 17 in Mode 16	
<input type="checkbox"/>	VERIFY	Peer 17 is in Controlled Access	MODE 16
<input type="checkbox"/>	RAISE	Current value (~ 4.1mA) for Alarm Response at MCR	
<input type="checkbox"/>	VERIFY	Response at MCR is	ALARM
	RECORD	Current value	_____ mA
	RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	Peer 17 is in Safe Mode	MODE 2
	LOWER	Current value for ~ 1.0 V output for Div A & B	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 8XGS1 as	SAFE

☐ Check for test acceptance of Current Source test of North Gas detector 8XGS1 in PHENIX in Mode 16

1.4 Current Source Test of North Gas Detector 8XGS1 in PHENIX in Mode 2

- | | | | |
|--------------------------|---------------|--|----------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 17 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Safe Access | MODE 2 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | <u> </u> mA |
| | RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 remains in Safe Mode | MODE 2 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS1 is | SAFE |
- ☐ Check for acceptance of Current source test of PHENIX North Gas detector, 8XGS1, in Mode 2

1.5 Current Source Test of PHENIX North Gas Detector, 8XGS1, in Mode 24 and Bad Sensor check

- | | | | |
|--------------------------|---------------|--|----------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 24 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in No Access | MODE 24 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | <u> </u> mA |
| | RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 remains in No Access | MODE 24 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS1 as | SAFE |

- | | | | |
|--------------------------|----------------|---|-------------------|
| | REVERSE | Current Source connections | |
| <input type="checkbox"/> | RAISE | Current value (~ 1.1 mA) for Bad Sensor response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | BAD SENSOR |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 0.725V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| | RAISE | Current value (~ 0 mA) for ~ 1V output | |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.0V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Bad Sensor at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS1 is | SAFE |
- ☐ Check for acceptance of Current Source test of PHENIX North Gas detector 8XGS1 in Mode 24 and Bad Sensor check

1.6 Gas Activation test of PHENIX North Gas Detector, 8XGS1, in Mode 8

- | | | | |
|--------------------------|----------------|--|---------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Restricted Access | MODE 8 |
| <input type="checkbox"/> | DISCONN | Current Source | |
| <input type="checkbox"/> | VERIFY | Current Source is | DISCONNECTED |
| | SPRAY | 50% L.E.L. gas on 8XGS1 (~2 mins reaction) | |
| | RECORD | Trip Level: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 17 is in Safe Mode | MODE 2 |
| | ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| | RECORD | Quiescent Vltg: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS1 as | SAFE |
| | DISCONN | Voltmeter | |
- ☐ Check for acceptance of Gas Activation test of PHENIX North Gas detector 8XGS1 in Mode 8

1.7 Current Source Test of PHENIX Central Gas Detector, 8XGS2, in Mode 8

CONN	Voltmeter to Div A: Mod 11 Input 3, 1008B	
CONN	Voltmeter to Div B: Mod 6 Input 2, 1008B	
CONN	Current Srce to Tp 3(+), Tp 4(-) 8XGS2 pcb in Div B cab 1008B	
PLACE	Peer 17 in Mode 8	
<input type="checkbox"/> VERIFY	Peer 17 is in Restricted Access	MODE 8
RAISE	Current value (~ 1.7 mA) for Level 1 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 1
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.4V
RAISE	Current value (~ 2.5 mA) for Level 2 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 2
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.6V
RAISE	Current value (~ 4.1mA) for Alarm response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	ALARM
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	Peer 17 is in Safe Mode	MODE 2
LOWER	Current value for ~ 1.6 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	FAIL
LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	SUCCESSFUL
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
LOWER	Current value for ~ 1.0 V output for Div A & B	
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS2 as	SAFE
<input type="checkbox"/>	Check acceptance of Current Source test of PHENIX Central Gas detector, 8XGS2, in Mode 8	

1.8 Current Source Test of Central Gas Detector 8XGS2 in PHENIX in Mode 17

- | | | | |
|--------------------------|---------------|--|----------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 17 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Restricted Access | MODE 17 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Safe Mode | MODE 2 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 as | SAFE |
- ☐ Check for test acceptance of Current Source test of Central Gas detector 8XGS2 in PHENIX in Mode 17

1.9 Current Source Test of Central Gas Detector 8XGS2 in PHENIX in Mode 16

- | | | | |
|--------------------------|---------------|--|----------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 16 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Controlled Access | MODE 16 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Safe Mode | MODE 2 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 as | SAFE |
- ☐ Check for test acceptance of Current Source test of Central Gas detector 8XGS2 in PHENIX in Mode 16

1.10 Current Source Test of Central Gas Detector 8XGS2 in PHENIX in Mode 2

- | | | | |
|--------------------------|---------------|---|--------------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 17 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Safe Access | MODE 2 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | <u> </u> mA |
| | RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | <u> </u> ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 remains in Safe Mode | MODE 2 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 is | SAFE |
- ☐ Check for acceptance of Current source test of PHENIX Central Gas detector, 8XGS2, in Mode 2

1.11 Current Source Test of PHENIX Central Gas Detector, 8XGS2 , in Mode 24 and Bad Sensor Check

- | | | | |
|--------------------------|---------------|---|--------------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 24 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in No Access | MODE 24 |
| <input type="checkbox"/> | RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | ALARM |
| | RECORD | Current value | <u> </u> mA |
| | RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | <u> </u> ~ 2.0V |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | Peer 17 remains in No Access | MODE 24 |
| | LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 as | SAFE |

- | | | | |
|--------------------------|----------------|--|-------------------|
| | REVERSE | Current Source connections | |
| <input type="checkbox"/> | RAISE | Current value (~ 1.1mA) for Bad Sensor response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | BAD SENSOR |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 0.725V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| | RAISE | Current value (~ 0 mA) for ~ 1V output | |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.0V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Bad Sensor at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 is | SAFE |
- ☐ Check for acceptance of Current Source test of PHENIX Central Gas detector 8XGS2 in Mode 24 and Bad Sensor Check

1.12 Gas Activation test of PHENIX Central Gas Detector, 8XGS2 , in Mode 8

- | | | | |
|--------------------------|----------------|--|---------------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Restricted Access | MODE 8 |
| <input type="checkbox"/> | DISCONN | Current Source | |
| <input type="checkbox"/> | VERIFY | Current Source is | DISCONNECTED |
| | SPRAY | 50% L.E.L. gas on 8XGS2 (~2 mins reaction) | |
| | RECORD | Trip Level: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 17 is in Safe Mode | MODE 2 |
| | ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| | RECORD | Quiescent Vltg: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS2 as | SAFE |
| | DISCONN | Voltmeter | |
- ☐ Check for acceptance of Gas Activation test of PHENIX Central Gas detector 8XGS2 in Mode 8

1.13 Current Source Test of PHENIX South Gas Detector, 8XGS3 , in Mode 8

CONN	Voltmeter to Div A: Mod 11 Input 6, 1008B	
CONN	Voltmeter to Div B: Mod 6 Input 3, 1008B	
CONN	Current Srce to Tp 3(+), Tp 4(-) 8XGS3 pcb in Div B cab 1008B	
PLACE	Peer 17 in Mode 8	
<input type="checkbox"/> VERIFY	Peer 17 is in Restricted Access	MODE 8
RAISE	Current value (~ 1.7 mA) for Level 1 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 1
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.4V
RAISE	Current value (~ 2.5 mA) for Level 2 response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	LEVEL 2
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 1.6V
RAISE	Current value (~ 4.1mA) for Alarm response at MCR	
<input type="checkbox"/> VERIFY	Response at MCR is	ALARM
RECORD	Current value	_____ mA
RECORD	Div A vltg: _____ V Div B vltg: _____ V	~ 2.0V
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	Peer 17 is in Safe Mode	MODE 2
LOWER	Current value for ~ 1.6 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	FAIL
LOWER	Current value for ~ 1.4 V output for Div A & B	
<input type="checkbox"/> VERIFY	Attempt to reset Alarm at MCR	SUCCESSFUL
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
LOWER	Current value for ~ 1.0 V output for Div A & B	
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS3 as	SAFE
<input type="checkbox"/>	Check acceptance of Current Source test of PHENIX South Gas detector, 8XGS3 , in Mode 8	

1.14 Current Source Test of South Gas Detector 8XGS3 in PHENIX in Mode 17

- | | | |
|--|---|----------------------|
| PLACE | Peer 17 in Mode 17 | |
| <input type="checkbox"/> VERIFY | Peer 17 is in Restricted Access | MODE 17 |
| RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 17 is in Safe Mode | MODE 2 |
| LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 8XGS3 as | SAFE |
- ☐ **Check for test acceptance of Current Source test of South Gas detector 8XGS3 in PHENIX in Mode 17**

1.15 Current Source Test of South Gas Detector 8XGS3 in PHENIX in Mode 16

- | | | |
|--|---|----------------------|
| PLACE | Peer 17 in Mode 16 | |
| <input type="checkbox"/> VERIFY | Peer 17 is in Controlled Access | MODE 16 |
| RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | ~ 2.0V |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 17 is in Safe Mode | MODE 2 |
| LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 8XGS3 as | SAFE |
- ☐ **Check for test acceptance of Current Source test of South Gas detector 8XGS3 in PHENIX in Mode 16**

1.16 Current Source Test of South Gas Detector 8XGS3 in PHENIX in Mode 2

- | | | |
|--|--|----------------------|
| PLACE | Peer 17 in Mode 17 | |
| <input type="checkbox"/> VERIFY | Peer 17 is in Safe Access | MODE 2 |
| RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | <u>~ 2.0V</u> |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 17 remains in Safe Mode | MODE 2 |
| LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 8XGS3 is | SAFE |
- ☐ Check for acceptance of Current source test of PHENIX South Gas detector, 8XGS3 , in Mode 2

1.17 Current Source Test of PHENIX South Gas Detector, 8XGS3 , in Mode 24 and Bad Sensor Check

- | | | |
|--|--|----------------------|
| PLACE | Peer 17 in Mode 24 | |
| <input type="checkbox"/> VERIFY | Peer 17 is in No Access | MODE 24 |
| RAISE | Current value (~ 4.1mA) for Alarm Response at MCR | |
| <input type="checkbox"/> VERIFY | Response at MCR is | ALARM |
| RECORD | Current value | <u> </u> mA |
| RECORD | Div A vltg: <u> </u> V Div B vltg: <u> </u> V | <u>~ 2.0V</u> |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> VERIFY | Peer 17 remains in No Access | MODE 24 |
| LOWER | Current value for ~ 1.0 V output for Div A & B | |
| <input type="checkbox"/> VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> VERIFY | Evac & Exp alarm | OFF |
| RESET | Alarm at MCR | |
| <input type="checkbox"/> VERIFY | MCR sees 8XGS3 is | SAFE |

REVERSE Current Source connections

- | | | | |
|--------------------------|---------------|--|-------------------|
| <input type="checkbox"/> | RAISE | Current value (~ 1.1mA) for Bad Sensor response at MCR | |
| <input type="checkbox"/> | VERIFY | Response at MCR is | BAD SENSOR |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 0.725V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| | RAISE | Current value (~ 0 mA) for ~ 1V output | |
| | RECORD | Current value | _____ mA |
| | RECORD | Div A vltg: _____ V Div B vltg: _____ V | ~ 1.0V |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Bad Sensor at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS3 is | SAFE |
- ☐ **Check for acceptance of Current Source test of PHENIX South Gas detector 8XGS3 in Mode 24 and Bad Sensor Check**

1.18 Gas Activation test of PHENIX South Gas Detector, 8XGS3, in Mode 8

- | | | | |
|--------------------------|----------------|---|---------------|
| <input type="checkbox"/> | PLACE | Peer 17 in Mode 8 | |
| <input type="checkbox"/> | VERIFY | Peer 17 is in Restricted Access | MODE 8 |
| | DISCONN | Current Source | |
| | SPRAY | 50% L.E.L. gas on 8XGS3 (~2 mins reaction) | |
| | RECORD | Trip Level: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | ON |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | ON |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | ON |
| <input type="checkbox"/> | VERIFY | MCR sees Peer 17 is in Safe Mode | MODE 2 |
| | ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| | RECORD | Quiescent Vltg: Div A vltg: _____ V Div B vltg: _____ V | |
| <input type="checkbox"/> | VERIFY | Fan 8XEF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Fan 8XSF1 is | OFF |
| <input type="checkbox"/> | VERIFY | Evac & Exp alarm | OFF |
| | RESET | Alarm at MCR | |
| <input type="checkbox"/> | VERIFY | MCR sees 8XGS3 as | SAFE |
| | DISCONN | Voltmeter | |
- ☐ **Check for acceptance of Gas Activation test of PHENIX South Gas detector 8XGS3 in Mode 8**

1.19 Test of PHENIX Gas Detector 8XGS4 in Mode 8 – Div A, simulated output only

<input type="checkbox"/>	PLACE	Peer 17 in Mode 8	
<input type="checkbox"/>	VERIFY	Peer 17 is in Restricted Access	MODE 8
	CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees Peer 17 in Safe Mode	MODE 2
	DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 8XGS3 is	SAFE

☐ Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 8 – Div A, simulated output only

1.20 Test of PHENIX Gas Detector 8XGS4 in Mode 8 – Div B, simulated output only

<input type="checkbox"/>	PLACE	Peer 17 in Mode 8	
<input type="checkbox"/>	VERIFY	Peer 17 is in Restricted Access	MODE 8
	CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/>	VERIFY	MCR sees Peer 17 in Safe Mode	MODE 2
	DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/>	VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/>	VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/>	VERIFY	Evac & Exp alarm	OFF
	RESET	Alarm at MCR	
<input type="checkbox"/>	VERIFY	MCR sees 8XGS3 is	SAFE

☐ Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 8 – Div B, simulated output only

1.21 Test of PHENIX Gas Detector 8XGS4 in Mode 17 – Divs A&B, simulated output only

PLACE	Peer 17 in Mode 17	
<input type="checkbox"/> VERIFY	Peer 17 is in Restricted Access	MODE 17
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees Peer 17 in Safe Mode	MODE 2
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS4 is	SAFE

☐ **Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 17 – Divs A&B, simulated output only**

1.22 Test of PHENIX Gas Detector 8XGS4 in Mode 16 – Divs A&B, simulated output only

PLACE	Peer 17 in Mode 16	
<input type="checkbox"/> VERIFY	Peer 17 is in Controlled Access	MODE 16
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees Peer 17 in Safe Mode	MODE 2
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS4 is	SAFE

☐ **Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 16 – Divs A&B, simulated output only**

1.23 Test of PHENIX Gas Detector 8XGS4 in Mode 2 – Divs A&B, simulated output only

PLACE	Peer 17 in Mode 2	
<input type="checkbox"/> VERIFY	Peer 17 is in Safe Mode	MODE 2
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees Peer 17 remain in Safe Mode	MODE 2
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS4 is	SAFE

☐ Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 2 – Divs A&B, simulated output only

1.24 Test of PHENIX Gas Detector 8XGS4 in Mode 24 – Divs A&B, simulated output only

PLACE	Peer 17 in Mode 24	
<input type="checkbox"/> VERIFY	Peer 17 is in No Access	MODE 24
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
CONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	ON
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	ON
<input type="checkbox"/> VERIFY	Evac & Exp alarm	ON
<input type="checkbox"/> VERIFY	MCR sees Peer 17 remain in	MODE 24
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div A	
DISCONN	Jumper across Terms 11&12 , PHENIX Iface Block I/O Div B	
<input type="checkbox"/> VERIFY	Fan 8XEF1 is	OFF
<input type="checkbox"/> VERIFY	Fan 8XSF1 is	OFF
<input type="checkbox"/> VERIFY	Evac & Exp alarm	OFF
RESET	Alarm at MCR	
<input type="checkbox"/> VERIFY	MCR sees 8XGS4 is	SAFE

☐ Check for acceptance of test of PHENIX Gas detector 8XGS4 in Mode 24 – Divs A&B, simulated output only

1.25 Gas Activation test of PHENIX Gas- House Gas Detector, 8XGS5, in Mode 8

- | | | |
|--|---|---------------|
| PLACE | Peer 17 in Mode 8 | |
| <input type="checkbox"/> VERIFY | Peer 17 is in Restricted Access | MODE 8 |
| SPRAY | 50% L.E.L. gas on 8XGS5 (~2 mins reaction) | |
| <input type="checkbox"/> VERIFY | LOCAL Evac & Exp alarm | ON |
| ALLOW | 50% L.E.L. gas dissipation (~ 2 mins) | |
| <input type="checkbox"/> VERIFY | LOCAL Evac & Exp alarm | OFF |

- ☐ **Check for acceptance of Gas Activation test of PHENIX Gas-House Gas detector 8XGS5 in Mode 8**

END OF TEST PROCEDURE

TTL: Sign for completion of initial testing: _____

Date: ____/____/____

TTL: Sign for completion of final testing: _____

Date: ____/____/____